

STATE OF VERMONT  
PUBLIC SERVICE BOARD

Docket No. 7035

Joint Petition of Green Mountain Power Corporation     )  
and Vermont Electric Cooperative, Inc. for a certificate     )  
of public good, pursuant to 30 V.S.A. Section 248,     )  
authorizing: (1) the construction of a new joint     )  
substation with a transformer operating at 34.5/12.5 kV     )  
to be located south of Governor Peck Road on the north     )  
side of I-89; (2) the removal of two existing substations;     )  
and (3) the reconfiguration of the adjacent transmission     )  
and distribution lines to be served by the joint     )  
substation, all in Richmond, Vermont –     )

Hearing at  
Montpelier, Vermont  
May 6, 2005

Order entered: 6/20/2005

PRESENT:           William B. Jordan, Hearing Officer

APPEARANCES:     Peter H. Zamore, Esq.  
                      Benjamin Marks, Esq.  
                      Sheehey Furlong & Behm, P.C.  
                                  for Green Mountain Power Corporation

                      Victoria J. Brown, Esq.  
                                  for Vermont Electric Cooperative, Inc.

                      John J. Cotter, Esq.  
                                  for Vermont Department of Public Service

                      David Englander, Esq.<sup>1</sup>  
                                  for Vermont Agency of Natural Resources

**I. INTRODUCTION**

On December 10, 2004, the Vermont Public Service Board ("Board") received a joint petition from Green Mountain Power Corporation ("GMP") and Vermont Electric Cooperative, Inc. ("VEC") (together, the "Co-Petitioners") for a certificate of public good ("CPG"), pursuant to 30 V.S.A. Section 248, to authorize the construction of a new jointly-owned substation, the

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1. Filed a Notice of Appearance, but did not attend the technical hearing.

removal of two existing substations, and the reconfiguration of transmission and distribution lines adjacent to the proposed substation, all in Richmond, Vermont (the "Project").

In this proposal for decision, I recommend that the Board grant the petition and issue a CPG to the Co-Petitioners, subject to certain conditions.

## **II. PROCEDURAL HISTORY**

The Co-Petitioners provided a copy of their complete December 10, 2004, filing to each party specified in subdivision (a)(4)(C) of Section 248. On January 5, 2005, the Board notified all such parties that the Board had appointed William B. Jordan, Utilities Engineer, as the Hearing Officer in this proceeding and that a prehearing conference would be held at the Board's conference room in Montpelier on January 11, 2005.

I held the prehearing conference as scheduled on January 11, 2005, to address this petition. Appearances were entered by: Peter H. Zamore, Esq., and Benjamin Marks, Esq., of Sheehey Furlong & Behm, P.C., for GMP; Victoria J. Brown, Esq., for VEC; John Cotter, Esq., for the Vermont Department of Public Service ("Department" or "DPS"); and David Englander, Esq., for the Vermont Agency of Natural Resources ("ANR"). At the prehearing conference, I raised two potential issues. The first issue was that VEC filed testimony regarding its pending, rather than approved, Integrated Resource Plan.<sup>2</sup> The second issue was that I would require additional information regarding the facilities to remain at the existing GMP substation pending disposition of the substation property. No party raised any other issue at that time. The parties proposed, and I adopted, a schedule for the remainder of this proceeding.

Pursuant to subdivision 248(a)(4)(A), the Board arranged for publication of notice in the *Burlington Free Press* on January 18 and 25, 2005, and in the Williston Observer on January 20 and 27, 2005. The publications notified the public that a public hearing would be held on GMP's and VEC's joint petition in the Cafeteria of the Richmond Elementary School at 7:00 p.m. on February 8, 2005. On January 25, 2005, the Board issued, to the service list in this docket, notice

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2. In response to the first issue that I had raised at the prehearing conference, on January 19, 2005, VEC filed a letter stating that, "although VEC has filed several integrated resource plans over the years, none of those plans has been reviewed and approved by the Board." VEC's pending integrated resource plan was filed on January 15, 2004.

of the public hearing to be held on February 8, 2005, and of the site visit to be held at 2:30 p.m., also on February 8, 2005.

The site visit and public hearing took place as scheduled on February 8, 2005. Representatives of GMP, VEC, and the Department attended the site visit and the public hearing. One representative of the Town of Richmond attended the site visit, but did not attend the public hearing. No other person attended the site visit or the public hearing. In addition, no person requested intervention by the February 17, 2004, deadline.

On March 14, 2005, I issued to the Co-Petitioners an information request to clarify certain aspects of the petition, and requested that the responses be in the form of supplemental prefiled testimony and exhibits. On March 24, 2005, the Co-Petitioners filed supplemental testimony and exhibits in response to my information request.

The technical hearing was held as scheduled on May 6, 2005. At the technical hearing, the Co-Petitioners filed a Stipulation among GMP, VEC, the Department, and ANR (collectively, the "Parties"). The Stipulation sets forth the following agreements reached among the Parties:

1. The Parties agree that the Hearing Officer should issue a Proposal for Decision in the form attached [to the Stipulation] and that the Public Service Board should approve of and adopt the Proposal for Decision.
2. The Department and ANR do not oppose the construction of a new Joint Substation with a transformer rated at 10.5 MVA and operating at 34.5/12.5 kV with an access driveway located south of Governor Peck Road on the north side of I-89 in Richmond, Vermont; the decommissioning of Petitioners' respective existing substations; and the reconfiguration of adjacent transmission and distribution lines (the "Project").
3. The Parties agree that there is no unresolved issue as to any material fact relating to the Project.
4. The Parties stipulate to the admission of the prefiled testimony, and supplemental prefiled testimony of Patrick J. Kearney, Terrence J. Boyle and Harry R. Abendroth and the additional supplemental prefiled testimony of Patrick J. Kearney and exhibits thereto into the evidentiary record as a basis for the findings and conclusions in the Proposal for Decision.
5. The Parties agree that this Stipulation and any Order approving this Stipulation relates only to these Parties and should not be construed by any entity or tribunal as having precedential or any other impact on other proceedings. The Stipulation and any order approving this Stipulation shall not be construed by any entity or tribunal as having precedential impact on any future proceedings involving the Parties except as necessary to ensure implementation of this Stipulation or to enforce an order of the Board resulting from this Stipulation.

6. The Parties reserve the right in future proceedings to advocate positions that differ from those set forth in this Stipulation, and this Stipulation and any order approving this Stipulation may not in any future proceeding be used against any Party except as necessary to enforce obligations under this Stipulation or to enforce an order of the Board resulting from this Stipulation.

7. The Parties agree that should the Board fail to approve in their entirety all paragraphs of this Stipulation, the Parties' agreements set forth herein shall terminate, except for those agreements contained in paragraphs 5, 6 and 7 hereto which shall survive any termination of this Stipulation and be binding on the Parties, and the Parties shall have the right to present testimony and argument on all issues addressed by this Stipulation.

8. If the Board adopts the Proposal for Decision and issues an Order in substantially the form as that agreed to by the Parties, the Parties waive their rights to (a) oral argument and to comment thereon pursuant to 3 V.S.A. § 811 and (b) appeal the Order.

On May 10, 2005, the Department filed a determination pursuant to 30 V.S.A. § 202(f) that the Project is consistent with the *Vermont Electric Plan*.

This matter is ready for decision, and I hereby propose that the Board make the following findings of fact and issue a conditioned CPG to the Co-Petitioners for the Project.

### **III. FINDINGS OF FACT**

1. Green Mountain Power Corporation is a company as defined by 30 V.S.A. § 201, and has offices in Colchester, Vermont. Pet. at 1.

2. Vermont Electric Cooperative, Inc., is a company as defined by 30 V.S.A. § 201, and has offices in Johnson, Vermont. Pet. at 1.

3. GMP and VEC provide electric power in the state of Vermont and own distribution facilities in the Town of Richmond, Vermont. Pet. at 1.

#### **Existing Conditions - GMP Facilities**

4. GMP owns and operates an existing substation (the "GMP Substation") located on School Drive (off the Richmond-Jericho Road) in the Town of Richmond. The GMP Substation is located immediately adjacent to a well-traveled public way with traffic from two adjacent schools – the Camel's Hump Middle School and the Richmond Elementary School. Kearney pf. at 2; exhs. PJK-1, PJK-2, PJK-8.

5. The GMP Substation was constructed in 1937 and utilizes a three-phase 34.5/12.5 kV transformer rated at 7.5/10.5 MVA. Kearney pf. at 2.

6. The GMP Substation is served by a 34.5 kV radial transmission line connected to the GMP 34.5 kV 3334 transmission line, which connects GMP's Sand Hill Road (Essex) and Bolton substations. Kearney pf. at 2; exh. PJK 8.

7. The GMP Substation serves two outgoing 12.5 kV distribution feeders, which are protected by individual reclosers. The first feeder is 10 miles long and serves 310 customers. The second feeder is 40 miles long and serves 1,327 customers. Kearney pf. at 2-3.

8. The historical combined non-coincidental peak loads of the two GMP Substation distribution feeders has been below the GMP Substation capacity of 7.5 MVA. Kearney pf. at 13.

9. The presence of the GMP Substation, the northeast side of which is bordered by School Drive, has been an ongoing safety concern to the Richmond School Board. An estimated several hundred school children pass the GMP Substation every day, and for this reason it has a barricaded fence as a safety measure. Kearney pf. at 3.

10. The north and west sides of the GMP Substation are bordered by a large ravine, which would make expansion of the substation very difficult, and which makes it nearly impossible to place the mobile substation at this site to respond to a major equipment failure or emergency replacement. Kearney pf. at 3.

11. The narrow space between School Drive and the ravine has resulted in a very small footprint for the GMP Substation fence and brick control building, which in turn have required extremely tight spacing of equipment and electrical clearances within the substation. These tight spacial conditions can increase the risk of substation failure and equipment damage due to a fault, can make it difficult to safely perform maintenance and repair work, and can extend the outage time related to maintenance and repair work. Kearney pf. at 3-4.

#### **Existing and Historical Conditions - VEC Facilities**

12. VEC owns and operates an existing substation (the "VEC Substation") located on U.S. Route 2 near Exit 11 of Interstate 89 ("I-89") in the Town of Richmond. The VEC Substation

was constructed in 1966 and utilizes one single-phase 34.5/7.2 kV transformer rated at 1.250 MVA. The existing substation transformer is 32 years old, and was installed as an interim measure while VEC investigated rebuilding or replacement of the substation. Abendroth pf. at 3, 5; exhs. PJK-1, PJK-8; exh. TJB-10.

13. The VEC Substation is served by a VEC-owned 34.5 kV radial transmission line connected to the GMP 34.5 kV 3334 transmission line. This VEC-owned 34.5 kV line continues south to the existing VEC Hinesburg substation. Abendroth pf. at 3; exh. [PJK-8].

14. Most of VEC's Richmond distribution system is located north of I-89, extending about 8 miles throughout, and serving VEC's members within the towns of Richmond, Jericho, and Bolton. About half of this system was originally built as a three-phase distribution system, but has been operated as a single-phase distribution system after two transformers were removed from the VEC Substation in the 1980s. VEC operates about one mile of single-phase distribution south of I-89, the majority of which is constructed as underbuild on the Hinesburg 34.5 kV transmission line. Abendroth pf. at 3.

15. The continued long-term operation of the Richmond distribution system as a single-phase system would result in a large unbalanced load imposed on GMP's 34.5 kV transmission system. Abendroth pf. at 5.

16. The 32-year-old VEC Substation transformer is presently operating at capacity during the winter, and has experienced some overloading during periods of severe winter weather. The most recent summer peak load was 1.110 MVA and occurred in June 2004. The most recent winter peak was 1.332 MVA and occurred in November 2003. Pet. at 2; Abendroth pf. at 3.

17. Based upon analyses performed for its Integrated Resource Plan ("IRP") filed with the Board in January 2004, VEC's annual projected load growth is 2.38% for the geographic area served by the VEC Substation. Abendroth pf. at 4.

18. On November 9, 1973, the Board issued an Order and CPG in Docket No. 3724, granting VEC approval to construct transmission and distribution lines in the Towns of Richmond and Hinesburg and to construct a substation in the Town of Hinesburg. Condition 7 of the 1973 CPG stated:

No structures, other than a single pole structure, shall remain at the site of the existing Richmond substation after completion of the subject construction. If it

is determined by the Petitioner that more structures and equipment other than a single pole structure are in fact necessary at this location, the Petitioner shall submit a proposal regarding this matter to the Board to be set for further hearing pursuant to 30 V.S.A. § 248.

Abendroth pf. at 4.

19. Construction of the Hinesburg substation was completed in 1974. VEC's Richmond substation has continued to operate since 1974, although, during the 1980s, VEC removed two of the three transformers at its Richmond substation and converted the distribution system from three-phase to single-phase. No further actions were taken by VEC to retire its Richmond substation. Abendroth pf. at 3-5.

20. In September of 2002, VEC petitioned the Board for relief from Condition 7 of the CPG in Docket No. 3724. On February 21, 2003, the Board issued an Order granting VEC relief from Condition No. 7 for a one-year period from the date of the Order. As a condition, the Board directed VEC "to take all reasonable steps to work to develop and implement with Green Mountain Power Corporation alternatives to the Richmond Substation," and, within one year of the date of the Order, to report to the Board and the Department on the progress of its investigation of alternatives to the continued use of the Richmond Substation. Further, the Board provided that "VEC may petition the Board for renewal of the suspension of the condition for a period of one year, if it can show that the investigation into alternatives is not complete and that good cause exists as to why the investigation has not been completed." Abendroth pf. at 4-5; Docket No. 3724, Order of 2/21/03.

21. On February 23, 2004, VEC filed a request for a one-year renewal of the suspension granted in the Board's February 21, 2003, Order. VEC represented that negotiations with landowners for an alternative location to the VEC Substation are ongoing. On March 17, 2004, the Board granted VEC a one-year renewal of the suspension of Condition No. 7 of the November 9, 1973, CPG. As a condition to this renewal, the Board required VEC to file, on May 24, 2004, August 23, 2004, and November 22, 2004, updates on its progress on investigating alternatives to the current Richmond substation. VEC filed its most recent update with the Board on November 16, 2004, and filed its petition (along with GMP) for the Joint

Substation on December 10, 2004, which is the subject of this proceeding. Abendroth pf. at 5; Docket No. 3724 Order of 3/17/04.

22. Construction of the Joint Substation, as described in the testimony filed in this docket, will enable VEC to implement the requirements of Condition 7 of the CPG issued by the Board in Docket No. 3724. Abendroth pf. at 5.

### **Discussion**

According to the testimony submitted in this proceeding (see the Findings of Fact and testimony and exhibits referenced therein in the Description of Proposed Project, below), VEC proposes to remove all structures inside the VEC Substation fence, except the concrete transformer foundation slab would be abandoned in place. On VEC property outside the VEC Substation fence, VEC proposes to leave in place one double-pole structure which supports the VEC 34.5 kV span over I-89 north of the VEC Substation, one single-pole structure which supports the VEC 12.5 kV span over I-89 east of the VEC substation, and one VEC 34.5 kV single-pole structure with distribution underbuild south of the VEC Substation. Because VEC proposes to leave the concrete transformer foundation slab in place, and, further, if the "site of the existing Richmond substation" language in Condition 7 is read to include the VEC property outside of the existing VEC Substation fence, VEC's proposal does not comply with the first sentence of Condition 7, which requires only one single-pole structure to remain at the "site." However, the second sentence of Condition 7 gives VEC the alternative to petition the Board if VEC believes that "more structures and equipment other than a single pole structure are in fact necessary at this location." Thus, the petition filed by VEC and GMP on December 10, 2004, for the Joint Substation and related work, which is the subject of this proceeding, is consistent with the second sentence of Condition 7. Consequently, I recommend that the Board make the determination that, upon completion of the Project, including the proposed removal of most of the features at the VEC Substation, no further action by VEC is required under Condition 7 of the CPG dated November 9, 1973, in Docket No. 3724.

### **Description of Proposed Project**

23. The Co-Petitioners propose to construct a new Joint Substation, to remove their existing substations, and to reconfigure the adjacent transmission and distribution lines to be served by the proposed Joint Substation. These proposals, described in greater detail in Findings 24 through 61, below, are hereafter collectively referred to as the "Project." Pet. at 2.

24. GMP and VEC have entered into a Richmond Substation Agreement identifying their respective rights and responsibilities for the construction, operation, and output of the Joint Substation. Kearney pf. at 4; exh. PJK-4.

25. The new Joint Substation would be constructed on a 2.5 acre parcel south of Governor Peck Road on the north side of I-89 in Richmond. The location of the Joint Substation would be approximately 0.3 miles northwest of the VEC Substation and approximately 1.0 mile northwest of the GMP Substation. Kearney pf. at 4-5.

26. GMP, on behalf of the Co-Petitioners, has entered into a purchase and sale agreement to purchase the 2.5 acre parcel, contingent upon acquisition of necessary regulatory approvals and easements. Kearney pf. at 4; exh. PJK-3.

27. The new site was chosen based on its discrete location (out of public view), proximity to all existing circuits and amenability to construction using conventional methods, thus reducing construction costs. Kearney pf. at 4-5; exh. PJK-5.

28. The Joint Substation would be constructed as an open steel frame box structure with a 120-foot by 85-foot footprint, surrounded by an 8-foot chain link fence. Although final design will not be established until the project is bid out, the design drawings are a fair representation of a substation of this type. The final design will not increase either the footprint or the height of the substation by more than 10 percent. Kearney pf. at 5-6; exh. PJK-6.

29. Co-Petitioners propose to install at the Joint Substation a transformer with a forced-air rating of 10.5 MVA operating at 34.5/12.5 kV. The Joint Substation is designed to accommodate a transformer with a forced-air rating of 14 MVA, should load requirements increase. Kearney pf. at 6; tr. at 26-27 (Kearney).

30. An underground concrete storage pit will be constructed to contain the transformer's maximum oil capacity of 1,070 gallons, as well as a minimum of 300 cubic feet of precipitation.

The oil containment pit will conform to IEEE Standard 980-1994, "IEEE Guide for Oil Containment and Control of Spills in Substations." An engineered structural berm, 12 to 18 inches high and 2 feet wide, and consisting of a compacted crushed stone base that is covered with fabric and stone, will be constructed as an oil containment system. The berm will be located inside the substation security fence, and will be constructed to be in compliance with the U.S. Environmental Protection Agency requirements for preventing oil pollution. Kearney pf. at 5.

31. Co-Petitioners propose to install three 437 kVA bus regulators. The Joint Substation is designed to accommodate 668 kVA regulators, if load requirements increase. Kearney pf. at 6.

32. The Joint Substation would include three distinct metering points: one for the VEC 34.5 kV line; one for the GMP distribution bus; and one for the VEC distribution bus. Kearney pf. at 6; tr. at 29 (Kearney).

33. The existing access driveway into the substation property is not adequate for utility vehicle traffic and must be rebuilt. It will be rebuilt in a location requested by Alan E. Marcelino, the property owner over whose land the access driveway will run. Kearney supp. pf. at 6.

34. The proposed access driveway serving the Joint Substation will extend approximately 2,200 feet from Governor Peck Road. The driveway is designed to accommodate the GMP mobile substation, will have a gravel surface, a width of 12 feet (plus two-foot shoulders) and a maximum grade of 6%. The proposed driveway will also serve an industrial development planned by the current owner of the property over which the proposed driveway will run, and the cost of the driveway will be shared between the Co-Petitioners and that property owner. Kearney pf. at 7; exhs. PJK-5, PJK-18 (Revised Sheet C-1), PJK-24; letter of Benjamin Marks to Susan Hudson dated March 2, 2005.

35. The existing GMP 12.47 kV line between Governor Peck Road and the location of the Joint Substation will be relocated as part of an agreement with Mr. Marcelino to remove the obstruction of the present lines and poles that go through the center of his lot. The proposed line along the access driveway will tie directly into GMP's existing main distribution line at the intersection of Governor Peck Road and the Joint Substation's access driveway. Kearney supp. pf. at 6.

36. The Joint Substation would be sourced by two new 34.5 kV feeder lines (denoted "1" and "2" on exhs. PJK-7, PJK-8) tapped off the existing GMP 3334 Line approximately 1,000 feet north of the Joint Substation. These two feeders, which would be owned by GMP, would provide a looped feed to the Joint Substation. Kearney pf. at 6.

37. The two new 34.5 kV feeders would be constructed as a double circuit using one set of 40- to 45-foot poles and 250-foot spans to maintain adequate clearance in GMP's 50-foot right-of-way. Spacer cables would be used for reliability. Kearney pf. at 6.

38. These proposed feeders will be SCADA operated between the Sand Hill (Essex) and Bolton Substations to allow remote switching and fast restoration of service in the event of an electrical fault. Kearney pf. at 6.

39. The two proposed 34.5 kV feeders will replace two existing 34.5 kV transmission lines, which will be eliminated: (a) a 1,200-foot 34.5 kV circuit (denoted "A" on exh. PJK-8) on 40-foot wood structures, which crosses I-89, connecting the 34.5 kV GMP transmission line to the existing GMP Substation; and (b) a 4,000-foot 34.5 kV circuit (denoted "B" on exh. PJK-8) on 40- and 45-foot wood structures connecting the 34.5 kV transmission line to the existing VEC Substation. Kearney pf. at 7; exhs. PJK-7, PJK-8.

40. The Joint Substation will serve four proposed outgoing 12.5 kV distribution feeders and one proposed outgoing 34.5 kV transmission feeder. Two new 12.5kV distribution circuits will feed existing GMP circuits (denoted "3" and "4" on exh. PJK-8), two new 12.5kV distribution circuits will feed existing VEC circuits (denoted "6" and "7" on exh. PJK-8) and a new 34.5kV feeder (denoted "5" on exh. PJK-8) will supply the VEC Hinesburg Substation. Kearney pf. at 7; exhs. PJK-7, PJK-8.

41. Four of these proposed outgoing circuits (three 12.5 kV circuits and the 34.5 kV circuit, designated by numbers 4, 6, 7, and 5, respectively, on exh. PJK-8) would extend to the southeast between the proposed Joint Substation and I-89. These circuits will be built on double-circuit poles in an existing corridor that is presently occupied by a GMP distribution circuit designated "D" as indicated on exh. PJK-8. All utility poles on these circuits will be 45 feet or 50 feet tall and buried 7 feet in the ground, resulting in above-ground heights of 38 and 43 feet, respectively. Kearney supp. pf. at 1-2.

42. The existing 12.5 kV exit feeders at the GMP Substation (denoted "C" on exh. PJK-8) and the existing 12.5 kV exit feeder from the existing GMP Substation to Governor Peck Road

	ID	Owner	Voltage (kV)	Location	Remove Existing (feet)	Proposed (feet)
Incoming Feeders	A	GMP	34.5	3334 Line to GMP Substation	1,200	
	B	VEC	34.5	3334 Line to VEC Substation	4,000	
	1	GMP	34.5	3334 Tap to Joint Substation		1,000
	2	GMP	34.5	3334 Tap to Joint Substation		1,000
Outgoing Feeders	C	GMP	12.5	exit feeders to GMP Substation	400	
	D	GMP	12.5	Gov. Peck Rd. to 51G2 line serving Southern Subdivision	5,000	
	3	GMP	12.5	Joint Substation to Gov. Peck Rd.		2,550
	4	GMP	12.5	Joint Substation to Route 2		2,700
	5	VEC	34.5	Joint Substation to location of VEC Substation		2,180
	6	VEC	12.5	Joint Substation to existing VEC line in ROW		1,905
	7	VEC	12.5	Joint Substation to existing VEC line in ROW		1,145
<b>Total 12.5 kV:</b>					<b>5,400</b>	<b>8,300</b>
<b>Total 34.5 kV:</b>					<b>5,200</b>	<b>4,180</b>
<b>Totals:</b>					<b>10,600</b>	<b>12,480</b>

(denoted "D" on exh. PJK-8) will be removed. Kearney pf. at 6-7.

43. A summary of the power lines to be removed and constructed is provided in the table below. Exh. PJK-8; tr. at 31-32 (Kearney).

44. The right of way ("ROW") in which proposed Circuits 4, 5, 6, and 7 will run is 100 feet wide. Circuits 5 and 7 will be located on the north side of the ROW centerline, and circuits 4 and 6 will be located on the south side of the ROW centerline. Within the 100-foot ROW, GMP will clear vegetation selectively. Kearney supp. pf. at 2; exhs. PJK-5, PJK-7, PJK-8.

45. After clearing, there will be a buffer of trees 40 to 50 feet tall at the southern ROW edge that will screen Circuits 4, 5, 6, and 7 from the view of Route 2 and I-89. The VEC and GMP circuits will be built parallel to one another in the ROW and 20 feet apart, thus reducing the clearing required in the ROW. Kearney supp. pf. at 2.

46. The proposed GMP 12.47 kV distribution line conductors will cross I-89 in the vicinity of the existing VEC Substation and just to the east of the existing VEC 12.47 kV lines. To the extent practicable, these lines will be installed at the same height as, and parallel to, the existing VEC 12.47 kV distribution line crossing I-89 at the same point. Kearney supp. pf. at 4; exh. PJK-22.

47. All proposed power lines will be located in existing rights of way or along existing roadways, except for that portion of the 34.5 kV source feeders located within the 2 1/2 acres of land acquired for the Project within which the Joint Substation is located. Kearney pf. at 7; exhs. PJK-7, PJK-8, PJK-22.

48. After VEC's Richmond distribution system is served by the Joint Substation, VEC will remove the VEC Substation equipment and all wood poles not required for continued operation of the VEC transmission and distribution systems. Individual components will be returned to warehouse inventory or sold as scrap to a licensed recycler. Any debris produced from demolition activity will be disposed of in an approved landfill. To minimize soil disturbance, VEC proposes to abandon in place the transformer foundation slab. VEC will retain the existing VEC Substation property, as it is located directly under the VEC 34.5 kV transmission line to Hinesburg. Abendroth pf. at 8; exh. PJK-22.

49. The proposed VEC support structure to be located directly to the north of Route 2 in the vicinity of the existing VEC Substation will be designed and positioned to support VEC's 34.5 kV and 12.47 kV circuits in a horizontal configuration. Exh. PJK-22.

50. At the time VEC's Richmond distribution system is connected to the Joint Substation, VEC will restore to three-phase operation those portions of the VEC Richmond distribution system that are currently operated as single-phase but are capable of three-phase operation. In addition, VEC plans to reconductor and add phases to its existing single-phase distribution line along Nashville Road in Jericho and Bolton. Abendroth pf. at 7.

51. After three-phase operation is restored to VEC's Richmond distribution system, a three-phase recloser with remote-control capability will be installed at an open point between VEC's Richmond and Jericho distribution systems near the intersection of Browns Trace Road and Nashville Road in Jericho. Remote-control capability will also be added to an existing three-phase recloser at VEC's Jericho Metering Point, where VEC connects to the Central Vermont Public Service Corporation ("CVPS") system. By operating these reclosers, VEC will be able to use its Richmond distribution system to back up its Jericho distribution system. Abendroth pf. at 7.

52. Following the connection of the Joint Substation, GMP will remove its 34.5 kV line to the GMP Substation and reconfigure the remaining poles as depicted on the schematic drawing exh. PJK-23. Kearney supp. pf. at 7.

53. GMP will retain an environmental consulting firm to prepare a reclamation report to advise GMP of the proper procedure for decommissioning the GMP Substation. Kearney pf. at 7-8.

54. Upon completion of the Joint Substation, GMP will remove and either salvage or discard all equipment from the GMP Substation. The control house and concrete pads under the equipment will be left in place pending disposition of the site. The fence surrounding the utility poles will remain in place until the control house and poles are removed from the site. Kearney pf. at 8.

55. All equipment and construction will comply with applicable safety requirements, including the National Electric Safety Code. Kearney pf. at 21.

56. Based upon the proposed transformer's forced-air rated capacity of 10.5 MVA, GMP's share of the substation capacity will be 6.75 MVA and VEC's share of the substation capacity will be 3.75 MVA. Based upon the rated capacity of the substation, GMP will have a 64.286%

ownership interest, and VEC will have a 35.714% ownership interest. The Co-Petitioners will own the Joint Substation as tenants in common. Kearney pf. at 11; exh. PJK-4.

57. The total Project cost is expected to be \$1,526,700, of which VEC's share will be \$541,855 and GMP's share will be \$984,845. Exh. PJK-10A.

58. Some of the associated facilities will be owned jointly (such as the driveway) while other facilities (such as the incoming and outgoing circuits and certain breakers, switches, and related equipment) will be solely owned by either GMP or VEC. Kearney pf. at 11.

59. GMP will manage acquisition, permitting, design, construction, operation and maintenance of the Joint Substation, with VEC's input. Kearney pf. at 11.

60. GMP will operate the Joint Substation, and will perform all routine maintenance on the facilities (whether under shared or individual ownership) at its standard contract-billing rates and the costs will be assigned based upon ownership of the associated facilities. Kearney pf. at 11.

61. Each of the Co-Petitioners will each be responsible for removal of its own existing substation facilities and for the costs of its solely-owned facilities. Kearney pf. at 11.

#### **REVIEW OF THE PROJECT UNDER SECTION 248'S CRITERIA**

##### **Orderly Development of the Region**

[30 V.S.A. § 248(b)(1)]

62. The Project will not unduly interfere with the orderly development of the region, with due consideration having been given to the recommendations of the municipal and regional planning commissions, the recommendations of the municipal legislative bodies and the land conservation measures contained in the plan of any affected municipality. This finding is supported by Findings 63 through 66, below.

63. The 2001 Chittenden County Regional Plan provides that energy-delivery facilities should be sited to "minimize environmental impacts while optimizing the economic utilization of existing and planned investments in energy infrastructure." Kearney pf. at 17; exh. PJK-15.

64. The Project complies with the Energy section of the 2001 Chittenden County Regional Plan because environmental impacts (including aesthetics) are less than those associated with the

two existing substations, and because the Joint Substation is efficiently integrated into the existing sub-transmission system. Kearney pf. at 17.

65. The proposed project also conforms with the Richmond Town Plan for Land Use Planning. One of the goals of the Richmond Town Plan is to discourage scattered development that would result in excessive use of energy. The development goals of the Richmond Town Plan include maintaining a pedestrian-friendly atmosphere in the village area, and concentrating new commercial/industrial development in four centers, including the east side of Governor Peck Road near the intersection with Route 117. Kearney pf. at 17; exh. PJK-16.

66. The consolidation of the GMP Substation and the VEC Substation into a single substation, removal of the GMP Substation, and location of the Joint Substation on Governor Peck Road near Route 117 promote the goals of the Richmond Town Plan for Land Use Planning described in the finding above. Kearney pf. at 17-18.

#### **Need For Present and Future Demand for Service**

[30 V.S.A. § 248 (b)(2)]

67. The Project is required to meet the present and future demand for service which could not otherwise be provided in a more cost-effective manner through energy conservation programs and measures and energy efficiency and load management measures. This finding is supported by Findings 68 through 79, below.

68. The Project is proposed primarily to address reliability, safety, and aesthetic issues. These issues cannot be addressed through energy-efficiency measures or distributed generation. Kearney pf. at 12-13; Abendroth pf. at 8.

69. The historical combined noncoincident peak loads of the two GMP Substation feeders have been below the substation capacity of 7.5 MVA. Kearney pf. at 12-13.

70. The Project will result in a net reduction of distribution system line losses of approximately 38 kW. Abendroth pf. at 9; Kearney pf. at 16; tr. at 31 (Abendroth).

71. The VEC Substation was originally constructed in 1966 and has reached the end of its useful life. The existing substation transformer is 32 years old, and was installed as an interim

measure while VEC investigated rebuilding or replacement of the substation. Abendroth pf. at 5, 8.

72. On November 9, 1973, the Board issued an Order and CPG in Docket No. 3724, granting VEC approval to construct transmission and distribution lines in the Towns of Richmond and Hinesburg and to construct a substation in the Town of Hinesburg. As a condition of this approval, the Board required VEC to remove its Richmond substation. VEC did not fully remove its Richmond substation. On February 21, 2003, the Board directed VEC to take all reasonable steps to develop and implement with GMP alternatives to VEC's Richmond substation. Abendroth pf. at 4-5; Docket No. 3724, Order of 2/21/03.

73. The existing 1,250 kVA VEC Substation transformer is presently operating at capacity during the winter, and has experienced some overloading during periods of severe winter weather. The winter peak load was 1,332 kVA in November 2003. The previous summer's peak load was 1,110 kVA in June 2004. Abendroth pf. at 3.

74. Based upon analyses performed for its IRP filed with the Board in January 2004, VEC's annual projected load growth is 2.38% for the geographic area served by the VEC Substation. Abendroth pf. at 4.

75. In addition, because the projected capital cost is less than the \$2 million threshold set in Docket 6290, the Project is not required to undergo distributed utility planning under the Docket 6290 guidelines, and additional distributed utility analysis is not required for the Project. Kearney pf. at 13; exh. PJK-11.

76. Co-Petitioners initially considered the alternative of locating the proposed Joint Substation on Route 2 at the location of the existing VEC Substation. This alternative was not pursued due to wetlands and visibility. Boyle pf. at 1.

77. VEC considered the alternatives of using its adjoining Jericho or Hinesburg distribution system to serve the load on the Richmond distribution system. Abendroth pf. at 5.

78. VEC eliminated the Jericho alternative because CVPS cannot serve the combined load of the Jericho and Richmond distribution systems without reconstructing its Jericho-area substation and the portion of the distribution system that ultimately serves VEC. Abendroth pf. at 5.

79. VEC did not pursue the Hinesburg alternative because (1) it would require VEC to build or reconductor approximately six miles of 12.47 kV distribution line with 477 ACSR at a cost of approximately \$700,000, (2) the Hinesburg capacity could be better used to back up the VEC Williston distribution system, and (3) the long distance (15 miles) from the VEC Hinesburg substation to the farthest ends of the Richmond distribution system. Abendroth pf. at 5-6.

### **System Stability and Reliability**

[30 V.S.A. § 248(b)(3)]

80. The Project will not adversely affect system stability and reliability. Rather, the Project will enhance system stability and reliability. This finding is supported by Findings 81 through 86, below.

81. The existing GMP and VEC Substations are fed radially off the same tap from the existing GMP 34.5 kV 3334 line. The proposed Joint Substation would be fed by dual 34.5 kV taps off of the 3334 line to result in a "loop feed" design for the Joint Substation. This is an improvement in reliability compared with the radial feed system that presently exists at the GMP and VEC Substations. Kearney pf. at 18-19.

82. The new 34.5 kV transmission tap into the 3334 line will be located approximately one mile north of the existing tap, but the stability of the electrical system will not change either on a transmission or distribution basis. Kearney pf. at 18.

83. Consolidation of equipment from the existing GMP and VEC Substations to the proposed Joint Substation will reduce exposures to failure, e.g. breakers, switches, meter points and line conductors. Kearney pf. at 19.

84. Replacement of the GMP Substation will enhance reliability because operating, maintenance and outage-related work can be performed more efficiently and safely, and because the mobile substation can be located at the new site. At the Joint Substation, there will be no space constraints inhibiting repair and maintenance work. Kearney pf. at 18.

85. The continued operation of VEC's Richmond distribution system as a single-phase system would impose a large unbalanced load upon GMP's 34.5 kV transmission system. Abendroth pf. at 5.

86. The restoration of three-phase operation to VEC's Richmond distribution system will allow VEC to use its Richmond distribution system to back up its Jericho distribution system. Abendroth pf. at 7.

**Economic Benefit to the State and Its Residents**

[30 V.S.A. § 248(b)(4)]

87. The Project will result in an economic benefit to the state and its residents. This finding is supported by Findings 88 through 90, below.

88. The consolidation of the existing GMP and VEC Substations, which both have older equipment, into the Joint Substation, which will contain new equipment, should result in lower operating and maintenance costs. Kearney pf. at 13.

89. The Project will allow VEC to provide reliable electric service to its members in the towns of Richmond, Jericho and Bolton by replacing facilities that are beyond economic repair. Abendroth pf. at 9.

90. The Project will enable VEC to reduce its distribution system line losses by 38 kW. Based on the Department's line loss evaluation spreadsheet, the 20-year Net Present Value of the 38 kW of line losses is \$121,600, or \$3,200 per kW. Abendroth pf. at 9.

**Aesthetics, Historic Sites, Air and Water Purity,  
the Natural Environment, and Public Health and Safety**

[30 V.S.A. § 248(b)(5)]

91. The Project will not have an undue adverse effect on aesthetics, historic sites, air and water purity, the natural environment and public health and safety. This finding is supported by Findings 92 through 131, below, which include the criteria specified in 10 V.S.A. §§ 1424a(d) and 6086(a)(1)-(8)(a) and (9)(k).

**Public Health and Safety**

92. The presence of the existing GMP Substation, the northeast side of which is bordered by School Drive, has been an ongoing safety concern to the Richmond School Board. An estimated

several hundred school children pass the GMP Substation every day, and for this reason it has a barricaded fence as a safety measure. Kearney pf. at 3.

93. The Project will improve public safety because there will not be any pedestrian or vehicular travel adjacent to the Joint Substation. Kearney pf. at 18.

94. GMP believes that no PCBs or other toxic substances have contaminated the GMP Substation site, which was constructed in 1937 and is currently adjacent to two schools in the Town of Richmond. Kearney pf. at 2; tr. at 24 (Kearney).

95. GMP will retain an environmental firm to prepare a reclamation report advising GMP of the proper procedure for decommissioning the GMP Substation. Kearney pf. at 7-8.

### **Discussion**

On January 11, 2005, the Town of Richmond Planning Commission filed its comments on the Project.<sup>3</sup> These comments were based upon public input received at a public informational meeting held by the Town of Richmond<sup>4</sup> on January 5, 2005, for the Project. Comment 2 stated that "[a]fter the two existing substations have been removed, the soil in those areas should be tested for any toxic contamination. Responsibility for cleanup and any liability for any contamination found should rest with the applicants." At the technical hearing, GMP stated that it objects to the Board including a CPG condition similar to Comment 2, but that GMP does not object to the Board including a condition in the CPG requiring GMP to submit, prior to the removal of equipment from the GMP Substation, the reclamation report for Board review for the purpose of determining whether further conditions, if any, relating to soils testing or remediation are necessary.<sup>5</sup> At the technical hearing, VEC did not state whether it would object to a condition similar to Comment 2.

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3. The Town of Richmond Planning Commission's January 11, 2005, filing was admitted into the evidentiary record as exh. Board-1.

4. The informational meeting held by the Town of Richmond on January 5, 2005, was held in addition to the public hearing held by the Board on February 8, 2005. No members of the Board or the Board's staff attended the informational meeting held by the Town of Richmond on January 5, 2005.

5. See tr. at 23-25 (Zamore).

Adding a condition to test for "any toxic contamination" at the existing substation sites would be an overly broad condition. Further, the "[r]esponsibility for cleanup and any liability for any contamination found" at the site might better be negotiated as part of the terms of the sale of the property, assuming the presence of toxic substances, if any, were known and disclosed. No party to this case has recommended that the Board include either such condition in the CPG for this proceeding, and no expert witness has suggested specific substances for which to test. However, the Town of Richmond raises a valid concern regarding the *potential* for the presence of toxic substances at former substation sites, which would be unfenced, and especially with one of these sites located adjacent to the Town's schools and immediately adjacent to the sidewalk used for pedestrian access to the schools.

I therefore recommend that the Board add a condition to the CPG which requires the Co-Petitioners, prior to removal of their Richmond substations, to retain one or more environmental firms experienced in substation removal to prepare a reclamation report or reports advising the Co-Petitioners of the proper procedure for decommissioning both the GMP Substation and the VEC Substation, and that the reclamation report(s) include recommendations from the consultant(s) regarding for which toxic contaminants, if any (based upon historical site conditions), the soil should be tested. Although the Co-Petitioners did not propose to prepare a reclamation report for the removal of the VEC Substation, I recommend that this requirement be expanded to include the VEC Substation because this site would be unfenced after substation removal, is adjacent to Route 2, and is in fairly close proximity to some residences.<sup>6</sup>

Comment 3 of the Town of Richmond Planning Commission's January 11, 2005, letter stated that "[t]he existing GMP substation near the elementary and middle schools provides a fence barrier between the sidewalk and a somewhat steep bank" and that "substation removal should assure that the resulting sidewalk configuration does not present a danger to children and

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6. I circulated this proposed condition to the Parties with an invitation for comment, and comments were received from GMP, the Department, and VEC by the comment deadline. GMP and the Department did not object to the condition as proposed. VEC did not object to the condition as long as the condition was changed to allow VEC to remove, prior to preparation of the reclamation report, the tops of existing poles within the VEC Substation to accommodate the relocation of VEC's transmission and distribution lines in accordance with the proposed Project. I recommend that the Board include the proposed condition and adopt the change requested by VEC.

others using this busy sidewalk."<sup>7</sup> GMP does not object to the Board including a CPG condition similar to Comment 3,<sup>8</sup> and I recommend that the Board include such a condition.

### **Air Pollution**

[10 V.S.A. § 6086(a)(1)]

96. There will be no incremental impacts on air quality from the proposed project, other than typical dust caused by activities during construction. Kearney pf. at 20.

97. It is expected that there will be a positive effect on ambient noise levels by replacement of two substations located near traveled areas with a single substation in a more remote location. Kearney pf. at 21.

### **Headwaters and Water Quality**

[10 V.S.A. § 1424a(d)(1)&(2) and § 6086(a)(1)(A)]

98. The Project is not located in a headwaters area, and therefore, will not reduce the quality of the ground or surface waters of a headwaters area. Kearney pf. at 21; exh. PJK-1.

### **Waste Disposal**

[10 V.S.A. § 6086(a)(1)(B)]

99. All removed brush and fill will be relocated from the site and will be disposed of in an approved landfill or will be utilized as clean fill on the site. Kearney pf. at 22.

100. Construction debris will be disposed of at state-approved landfills. Kearney pf. at 22.

101. The Project does not involve any injection of harmful or toxic substances into the ground. Kearney pf. at 22.

102. An underground concrete storage pit will be constructed to contain the transformer's maximum oil capacity of 1,070 gallons, as well as a minimum of 300 cubic feet of precipitation. The oil containment pit will conform to IEEE Standard 980-1994, "IEEE Guide for Oil Containment and Control of Spills in Substations." An engineered structural berm, 12 to 18 inches high and 2 feet wide, and consisting of a compacted crushed stone base that is covered

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7. See exh. Board-1.

8. See tr. at 23 (Zamore).

with fabric and stone, will be constructed as an oil containment system. The berm will be located inside the substation security fence, and will be constructed to be in compliance with the U.S. Environmental Protection Agency requirements for the prevention of oil pollution. Kearney pf. at 5.

103. The oil containment system is sufficiently sized to satisfy the IEEE and EPA oil containment guidelines mentioned in the finding above for a 14 MVA transformer, should an upgrade be required. Tr. at 27 (Kearney).

104. GMP has no plans to remove oil from any electrical equipment removed from the GMP Substation. In the event that oil removal is necessary, it will be performed by a recycler that is licensed in the State of Vermont to dispose of the oil. Disposal of all other material from the GMP Substation will be managed in accordance with applicable federal, state, and local regulations. Kearney pf. at 8.

105. VEC plans to return individual equipment components removed from the VEC Substation to its warehouse for inventory or to sell these components as scrap to a licensed recycler. Any debris produced from demolition activity will be disposed of in an approved landfill. Abendroth pf. at 8.

### **Water Conservation**

[10 V.S.A. § 6086(a)(1)(C)]

106. The Project will not require the use of water during or after construction. Because the proposed project will not involve water use, no water conservation measures are necessary. Kearney pf. at 19-20.

### **Floodways, Streams, and Shorelines**

[10 V.S.A. § 1424a(d)(3)&(12) and § 6086(a)(1)(D)(E) &(F)]

107. Based on visual observation and discussions with the ANR Water Quality Division, there are no floodways, streams, or shorelines located adjacent to the Project. Kearney pf. at 20; exh. PJK-17.

**Wetlands**

[10 V.S.A. § 6086(a)(1)(G)]

108. Based on visual observation and discussions with the ANR Water Quality Division, the only wetland located adjacent to the proposed project is a Class Two wetland located near the entrance to the access driveway. Kearney pf. at 20; Kearney add. supp. pf. at 1-2.

109. Although the Class Two wetland will not be disturbed, GMP is in the process of applying for a Conditional Use Determination ("CUD") from the Vermont Department of Environmental Conservation ("VDEC") to approve disturbance of soils in the 50-foot buffer zone around the wetland near the access driveway entrance and GMP's construction of a "level spreader" in this area to control runoff of silt into the wetland at the driveway entrance. The level spreader is a 36-foot long temporary installation made of wood planks located to the east of the access driveway entrance. The level spreader is designed so that in a heavy rain, water will accumulate behind it. In a heavy rain, water will flow over the level spreader in a sheeting action and silt will not travel into the brook which runs parallel to Governor Peck Road at the driveway entrance. GMP expects no material change to the Joint Substation as a result of the CUD. Kearney add. supp. pf. at 2-3.

**Sufficiency of Water and Burden on Existing Water Supply**

[10 V.S.A. §§ 6086(a)(2)&(3)]

110. The Project will not require the use of water during or after construction. Kearney pf. at 19.

**Soil Erosion**

[10 V.S.A. § 6086(a)(4)]

111. GMP received, for the Project, an Authorization to Discharge from the Agency of Natural Resources on January 18, 2005, pursuant to its General Permit No. 3-9001 relating to Notice of Intent 3796-9001. On April 12, 2005, VDEC approved an amendment to GMP's Erosion Prevention and Sedimentation Control Plan based on revised Sheets C5, C6 and C7 to exh. PJK-18 with respect to stormwater discharge for the Project. This amendment added the level spreader to the driveway entrance. GMP's stormwater discharge plan has been developed in

cooperation with technical advisors for VDEC and GMP. Kearney pf. at 21; Kearney supp. pf. at 8; Kearney add. supp. pf. at 3; exh. PJK-26.

112. The land adjacent to the proposed substation is relatively flat, and standard erosion control measures will be used during construction, including compliance with the standards contained in the Vermont Handbook for Soil Erosion and Sediment Control on Construction. Kearney pf. at 20.

113. All areas disturbed by construction will be graded and seeded upon completion of the proposed project. *Id.*; exhs. PJK-18, PJK-24; *see* letter of Benjamin Marks to Susan Hudson dated March 2, 2005.

114. Stormwater run-off will be dealt with by ditching and the construction of a temporary, wooden level spreader in the area to the east of the driveway entrance. Kearney add. supp. pf. at 2; exhs. PJK-18, PJK-19, PJK-24.

115. The Water Quality Division of the Agency of Natural Resources has determined that GMP does not need to file for a National Pollutant Discharge Elimination System permit relating to its construction of the Joint Substation. Kearney add. supp. pf. at 4; exh. PJK-27.

### **Transportation Systems**

[10 V.S.A. § 6086(a)(5)]

116. The Project will not cause unreasonable congestion or unsafe conditions with respect to use of the highways, waterways, railways, airports and airways, and other means of transportation existing or proposed. This finding is supported by the finding immediately below.

117. There will be a minimal increase in traffic on Governor Peck Road, limited to the construction period. Parking will be located on the parcel within which the substation lot is located. Kearney pf. at 19.

### **Educational and Municipal Services**

[10 V.S.A. §§ 6086(a)(6)&(7)]

118. The Project will not place or cause an unreasonable burden on the ability of a municipality to provide educational services or on the ability of the local governments to provide

municipal or governmental services. In fact, educational services will be enhanced by removing the GMP Substation located very close to the Richmond Elementary and Camels Hump Middle Schools. Kearney pf. at 19-20.

**Scenic or Natural Beauty, Aesthetics,**  
**and Rare and Irreplaceable Natural Areas**

[10 V.S.A. §§ 1424a(d)(7) through (9) and § 6086(a)(8)]

119. The Project will not have an undue adverse impact on scenic or natural beauty, aesthetics, and rare and irreplaceable natural areas. This finding is supported by Findings 120 through 125, below.

120. The Joint Substation will result in improved aesthetics because the new location will replace two highly visible facilities that are adjacent to significant vehicle and pedestrian traffic. By contrast, with few exceptions, the Joint Substation will be screened from view by the public. The Joint Substation site is well-screened from private property and public ways by existing hardwood and softwood vegetation. This analysis would be unchanged if either the height or footprint of the Joint Substation were to increase by 10%. Kearney pf. at 23; exh. PJK-9; Boyle pf. at 2; exh. TJB-6.

121. The poles of the two double-circuit lines between the Joint Substation and the I-89 crossing will be 38 feet and 43 feet above ground. Within the 100-foot ROW, GMP will clear vegetation selectively. The extent of this clearing will depend on the type of trees near the pole line. In places where there are trees with overhanging branches and it is possible to remove only those branches, GMP will not remove entire trees. In other places, where tree growth poses a danger to the circuits, GMP may clear to the edge of the ROW. After clearing, there will be a buffer of trees 40 to 50 feet tall at the southern ROW edge that will screen the power lines from the view of Route 2 and I-89. Kearney supp. pf. at 1-2.

122. GMP's existing 34.5 kV transmission circuit crossing over I-89 at the location of the existing GMP Substation will be removed and will be replaced by a distribution line crossing at the location of the existing line crossings at the VEC Substation. Kearney pf. at 23; exhs. PJK-8, PJK-22, PJK-23.

123. The gates to the Joint Substation equipment will be lit at night when necessary by two 250-watt high pressure sodium floodlights. These lights will be focused on the gates away from Governor Peck Road., Routes 2 and 117, and I-89. Lighting directed at the substation equipment will not be on a photosensor, but will be operated with manual switches and used only as needed. Kearney pf. at 23; Kearney supp. pf. at 7.

124. The proposed dual 34.5 kV tap lines will be less visible to the public than those to Co-Petitioners' current substations. Boyle pf. at 2; exh. TJB-2.

125. The area to the west of the Joint Substation is proposed as an industrial subdivision, providing access to the proposed Joint Substation lot. The areas to the east, north, and south are uninhabited, generally steep wooded hillsides. The area of the Joint Substation is secluded enough that plantings are proposed as a mitigation measure only along the proposed Joint Substation west fence line to enhance the site before construction of the industrial subdivision. Boyle pf. at 2; exh. TJB-3.

### **Discussion**

Based on the above findings, I conclude that this project will not have an undue adverse effect on the aesthetics or scenic and natural beauty of the area. In reaching this conclusion, I have relied on the Environmental Board's methodology for the determination of "undue" adverse effects on aesthetics and scenic and natural beauty as outlined in the so-called Quechee Lakes decision. Quechee Lakes Corporation, #3W0411-EB and 3WO439-EB, dated January 13, 1986.

As required by this decision, it is first appropriate to determine if the impact of the Project will be adverse. The Project would have an adverse impact on the aesthetics of the area if its design is out of context or not in harmony with the area in which it is located. If it is found that the impact would be adverse, it is then necessary to determine that such an impact would be "undue." Such a finding would be required if the Project violates a clear written community standard intended to preserve the aesthetics or scenic beauty of the area, if it would offend the sensibilities of the average person, or if generally available mitigating steps would not be taken to improve the harmony of the Project with its surroundings. The Board's assessment of whether a

particular project will have an "undue" adverse effect based on these standards should be significantly informed by the overall societal benefits of the project.<sup>9</sup>

Given the facts of this case, I find that the Project will not have an adverse effect on aesthetics. The Project involves the removal of two highly visible substations adjacent to roadways, and the replacement of these two substations with one substation in a remote location shielded from public view. The Project would remove approximately as many linear feet of transmission and distribution lines as it would construct, the new transmission and distribution lines will be within existing transmission corridors or right-of-ways (except for those lines on the 2.5-acre Joint Substation property), and the new transmission and distribution lines will be built on poles of approximately the same height as the adjacent or replaced lines. In the corridor between the proposed Joint Substation and the I-89 crossing at the VEC Substation, the four circuits on two double-circuit lines will be screened by the existing mature vegetation adjacent to the corridor.

Even if the Project were determined to have an adverse impact on aesthetics, such impact would not be undue. The Project does not violate a clear, written community standard, is not shocking or offensive, and this Project would not require additional mitigation. The Town of Richmond Planning Commission and the Chittenden County Regional Planning Commission were notified of the proposed Project and did not recommend any changes to the proposal. Because the Project will remove two highly-visible substations and replace them with one visually-buffered substation, and will not construct any new transmission lines in new corridors or with higher poles, the Project's presence will not be shocking, and will not offend the sensibilities of the average person. In choosing the location for construction, and by proposing to leave in place the mature vegetation to screen the Joint Substation and transmission and distribution lines from Route 2 and I-89, the Co-Petitioners have taken all reasonable available mitigating steps to harmonize or fit the project with the surroundings.

The Town of Richmond Planning Commission recommended that the Co-Petitioners should be "responsible for monitoring and maintaining the visual buffer around the new substation, including replacement plantings should they be needed to replace existing vegetated

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9. Docket 6884, Order of 4/21/04 at 20-21.

buffers currently provided by adjoining properties" and that "[t]he two existing substations should be fully removed no later than one year after the completion and proof of successful operation of the new substation."<sup>10</sup> During the technical hearing, I asked the Co-Petitioners if they objected to either of these recommendations from the Town of Richmond being included as conditions to the CPG. The Co-Petitioners stated<sup>11</sup> that they did not object to either of these conditions, and I therefore recommend that the Board include these as conditions to the CPG.

### **Archeological and Historic Resources**

[10 V.S.A. §§ 1424a(d)(10)&(11) and § 6086(a)(8)]

126. GMP's consultations with the Division for Historic Preservation indicate that the proposed project will not adversely affect historic sites. The area adjacent to the proposed substation has been previously disturbed, with large portions of the site having been excavated, apparently as a borrow pit (source for fill) during the construction of I-89. In addition, the area between the proposed access driveway and the proposed substation is crossed by existing trails used by ATVs. Kearney pf. at 21-22; exh PJK-20.

### **Wildlife Habitat and Endangered Species**

[10 V.S.A. §§ 1424a(d)(4) through (6) and § 6086(a)(8)(A)]

127. The Project will not destroy or significantly imperil any necessary wildlife habitat or endangered species. This finding is supported by the three findings below.

128. GMP's consultations with the Vermont Department of Fish and Wildlife ("VDFW") indicate that the proposed project will not adversely affect natural areas or animal or plant life. Kearney pf. at 21; exh. PJK-20.

129. The Joint Substation will be located in an area that is presently wooded and therefore clearing will be necessary. In addition, approximately 200 feet of one proposed circuit will require clearing adjacent to the substation. Kearney pf. at 22.

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10. Exh. Board-1, comments 4 and 5.

11. Tr. at 23 (Zamore).

130. The VDFW noted a large deer wintering area to the north of the Project, and requires that any development occur outside of a 300-foot buffer around a critical wildlife habitat such as a deer yard. However, VDFW has concluded that, from the information GMP provided, it appears the Project would be outside of this buffer. Exh. PJK-20

**Development Affecting Public Investments**

[10 V.S.A. § 6086(a)(9)(K)]

131. The Project will not adversely affect any public investments in governmental or public utility facilities. Kearney pf. at 20.

**Consistency With Company's Least-Cost Integrated Plan**

[30 V.S.A. § 248(b)(6)]

132. GMP's most recent Board-approved IRP was prepared in 1991 and approved by the Board in 1994 in Docket No. 5270-GMP-4 (Order dated May 3, 1994). Kearney pf. at 13-14; exh. PJK-12.

133. GMP's approved IRP provides that subtransmission improvements will be undertaken primarily to serve immediate area growth and to interface with any proposed expansion or upgrades to the Vermont Electric Power Company's bulk transmission system. It further indicates that reliability and loss reduction are two major factors in the selection of alternatives. Exh. PJK-12.

134. The Project is consistent with these provisions because it will reinforce the existing sub-transmission system, through the use of looped feeders. Reliability should improve for the same reason and due to the reduction in feeder length and elimination of remote circuits. Kearney pf. at 15.

135. The Project will result in a net reduction in losses of 38 kW. Kearney pf. at 16; Abendroth pf. at 7, 9; tr. at 30-31 (Abendroth).

136. The transmission and distribution operating voltages (34.5/12.5 kV) are consistent with voltages described in GMP's 1991 IRP. Kearney pf. at 15.

137. Replacement of separate substations with the Joint Substation is consistent with efficient operation of the transmission and distribution system. Kearney pf. at 15.

138. The Project is consistent with VEC's currently-pending IRP, which was filed with the Board on January 15, 2004. The need to replace or upgrade the existing Richmond Substation is described in this IRP.<sup>12</sup> Abendroth pf. at 9.

139. VEC's share of the project is required to comply with a Board Order issued in Docket 3724, and to replace existing facilities that have reached the end of their economic life. Abendroth pf. at 9.

140. VEC's share of the Project is consistent with the principles of least-cost planning. Tr. at 36 (Abendroth).

### **Discussion**

Section 248(b)(6) provides that, before issuing a certificate of public good for a company's proposed purchase, investment, or construction, the Board must find that the proposed action "is consistent with the principles for resource selection expressed in that company's *approved* least cost integrated plan" (emphasis added). Of the Co-Petitioners, only GMP has an approved least-cost integrated resource plan. As stated above, VEC has filed several IRPs over the years; however, to date, none of those plans has been approved by the Board. VEC's currently-pending IRP was filed with the Board on January 15, 2004.

Both the legislature and this Board have recognized that lack of an approved least-cost plan should not, by itself, preclude issuance of a certificate of public good for a proposed project. When the legislature amended Section 248 to add criterion (b)(6), it expressly provided that the statute as amended:

does not prohibit the public service board from granting a certificate of public good under 30 V.S.A. § 248 for a utility which does not have an approved least cost integrated plan; provided that the board shall consider in its review

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12. VEC has filed several IRPs over the years; however, to date, none of those plans has been approved by the Board. Letter of Victoria Brown to Susan Hudson dated January 19, 2005.

under that section those environmental effects which the utility must consider in developing a least cost integrated plan.<sup>13</sup>

Consistent with this legislative intent, when utilities do not have approved integrated resource plans, the Board evaluates projects under Section 248(b)(6) according to their consistency with the principles of least-cost integrated planning.<sup>14</sup> Those principles include consideration of the environmental impacts of the utility's resource decisions.<sup>15</sup>

The Vermont legislature and this Board have thus both concluded that it is appropriate to allow for approval of projects in the absence of an approved integrated least-cost plan. This allowance makes practical sense, in that it permits the Board to approve projects that are needed, beneficial to the public, and consistent with least-cost planning principles, even if the utility in question does not have an approved least-cost plan.<sup>16</sup>

### **Compliance With Electric Energy Plan**

[30 V.S.A. § 248(b)(7)]

141. The 1994 Twenty-Year Electric plan discourages the construction of duplicate facilities. By constructing a joint-owned facility with Green Mountain Power, each utility avoids the need to separately construct a new substation that would otherwise be required to serve their respective customers. Kearney pf. at 15; Abendroth pf. at 9; exh. PJK-12.

142. The Project is in compliance with the electric energy plan approved by the Department under 30 V.S.A. § 202, provided that the Co-Petitioners' actions in this matter are consistent with its petition and testimony, and provided that the Co-Petitioners comply with the conditions

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13. P.A. No. 259, § 8 (1992 Vt., Adj. Sess.).

14. Docket No. 5737, *Petition of Citizens Utilities Company re Baldwin Hydroelectric Project*, Order of 4/17/95 at 16–17.

15. See 30 V.S.A. § 218c(a)(1).

16. We do not wish to suggest that Vermont's utilities should blithely ignore their least-cost planning obligations. Instead, we are observing that, in those instances where the utility has not fulfilled those obligations, it would only make an undesirable situation worse to indiscriminately veto all resource options that come within the purview of Section 248, thereby depriving the utility of access to options to serve their customers in ways that might be far superior to the options that would remain.

contained in the Stipulation filed with the Board in this proceeding. DPS Determination Under 30 V.S.A. § 202(f) by W. Steven Litkovitz, dated May 10, 2005.<sup>17</sup>

**Outstanding Water Resources**

[30 V.S.A. § 248(b)(8)]

143. There are no watercourses in the vicinity of the Project that have been designated as Outstanding Resource Waters. Kearney pf. at 20.

**Waste to Energy Facilities**

[30 V.S.A. § 248(b)(9)]

144. The Project is not a municipal solid-waste-to-energy facility, and, therefore, this criterion is inapplicable.

**Existing or Planned Transmission Facilities**

[30 V.S.A. § 248(b)(10)]

145. The Project can be served by existing transmission facilities, with the changes described above, without undue adverse effect on Vermont utilities or customers. Kearney pf. at 20.

146. The Project will be served by the same GMP 34.5 kV transmission line that serves the existing GMP Substation and delivers energy to VEC's Richmond-Hinesburg transmission line. Abendroth pf. at 9.

147. The Project will not adversely impact the VEC transmission line. Abendroth pf. at 9.

148. Only VEC and GMP distribution systems will be served by the proposed facility; no other utilities will be affected by the proposed project. Abendroth pf. at 9.

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17. The Department's letter regarding compliance with the electric energy plan was not formally entered into the evidentiary record as an exhibit. However, the Parties rely upon such a letter to support a proposed finding under this criterion in their draft proposal for decision attached to the Stipulation. Therefore, it is clear that the Parties agree to treat this letter as part of the evidentiary record.

#### **IV. DISCUSSION**

This Project will result in the removal of two visually prominent substations, one of which has been an ongoing safety concern for the Richmond School Board, to be replaced by the construction of a new Joint Substation generally out of public view. In addition, this Project will allow VEC to comply with a Board Order to remove its Richmond substation. Although potential issues with the Section 248 criteria arose under public safety, wetlands, and aesthetics, the Project as proposed by the Co-Petitioners and as conditioned by the Board should not have adverse impacts under the substantive criteria of Section 248.

#### **V. CONCLUSION**

Based upon all the above evidence, in conjunction with the conditions discussed above, the proposed project, consisting of the site preparation for and construction of a Joint Substation, the removal of two existing substations, and the related configuration of the transmission and distribution lines to be served by the Joint Substation, all in the Town of Richmond, Vermont:

- (a) will not unduly interfere with the orderly development of the region with due consideration having been given to the recommendations of the municipal and regional planning commissions, and the recommendations of the municipal legislative bodies;
- (b) is required to meet the need for present and future demand for service which could not otherwise be provided in a more cost-effective manner through energy conservation programs and measures and energy efficiency and land management measures;
- (c) will not adversely affect system stability and reliability;
- (d) will result in an economic benefit to the state and its residents;
- (e) will not have an undue adverse effect on aesthetics, historic sites, air and water purity, the natural environment and the public health and safety, with due consideration having been given to the criteria specified in 10 V.S.A. § 1424a(d) and §§ 6086(a)(1) through (8) and (9)(K);
- (f) is consistent with the principles of least-cost integrated resource planning;

- (g) is in compliance with the electric energy plan approved by the DPS under § 202 of Title 30 V.S.A.;
- (h) does not involve a facility affecting or located on any segment of the waters of the State that has been designated as outstanding resource waters by the Water Resources Board; and
- (i) can be served economically by existing or planned transmission facilities without undue adverse effect on Vermont utilities or customers.

All parties to this proceeding have waived their rights under 3 V.S.A. § 811 to file written comments or present oral argument with respect to this proposal for decision, provided that this proposal for decision and the Board's Order is "in substantially the form as that agreed to by the Parties." I recommend that the Board approve the Stipulation in its entirety, and believe that this Proposal for Decision is "in substantially the form as that agreed to by the Parties."<sup>18</sup>

Dated at Montpelier, Vermont, this 17th day of June, 2005.

s/ William B. Jordan

William B. Jordan  
Hearing Officer

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18. See tr. at 17-25.

## **VI. BOARD DISCUSSION**

With two exceptions, we adopt the findings, conclusions, and recommendations of the Hearing Officer. First, as described in Finding 48, VEC proposes to minimize soil disturbance by abandoning in place the concrete transformer slab at the VEC Substation, and, according to Finding 54, GMP does not specifically propose to remove the concrete pads at the GMP Substation. Avoiding a small amount of soil disturbance is not a sufficient or compelling reason not to completely remove all features of the existing substations, and the Co-Petitioners have presented no other reason to leave the concrete equipment pads in place. Therefore, we will require, as a condition of approval, that GMP and VEC remove these concrete equipment pads.

Second, there is no evidence in the record to indicate that the Co-Petitioners can ensure that the existing mature vegetation will remain to screen Route 2 and I-89 from the proposed Joint Substation and from the proposed double-circuit transmission and distribution lines between the Joint Substation and the I-89 crossing at the location of the existing VEC Substation. This mature vegetation was relied upon in Findings 120 and 121 to make a positive finding under the aesthetics criteria incorporated into 30 V.S.A § 248(b)(5), and if this vegetation were to be removed, there is the potential that these proposed facilities might be highly visible from Route 2 and I-89. Therefore, we will require, as a condition of approval, that the Co-Petitioners must obtain, by purchase or easement, a real estate interest sufficient to guarantee that the existing mature vegetation will remain, or replacement of that vegetation can be located, to adequately screen from Route 2 and I-89: (1) the proposed Joint Substation, and (2) the proposed double-circuit transmission and distribution lines extending from the Joint Substation to the I-89 crossing at the location of the existing VEC Substation.

## **VII. ORDER**

IT IS HEREBY ORDERED, ADJUDGED AND DECREED by the State of Vermont Public Service Board that:

1. The findings, conclusions, and recommendations of the Hearing Officer are adopted, with the modifications described in Section VI. Board Discussion, above.

2. The Stipulation among GMP, VEC, the Department, and ANR dated May 5, 2005, is approved in its entirety, with the modifications described in Section VI. Board Discussion, above.

3. The construction by GMP and VEC of a Joint Substation, the removal of two existing substations, and the related configuration of the adjacent transmission and distribution lines to be served by the Joint Substation, all in the Town of Richmond, Vermont, in accordance with the evidence, plans and approvals submitted in this proceeding will promote the general good of the State of Vermont consistent with 30 V.S.A. § 248, and a certificate of public good shall be issued to allow such construction.

4. GMP and VEC shall comply with the following conditions set forth in the certificate of public good:

a. Construction, operation, and maintenance of the project shall be in accordance with the plans and evidence submitted in this proceeding.

b. The oil containment system for the Joint Substation shall be designed to accommodate the oil of a transformer with a forced-air rating of 14 MVA in accordance with the IEEE Standard 980-1994 "IEEE Guide for Containment and Control of Oil Spills in Substations" and with the U.S. Environmental Protection Agency requirements for the prevention of oil pollution.

c. Prior to the commencement of site preparation or construction, Co-Petitioners shall submit to the Board, the Department, and ANR detailed construction plans showing the final proposed location and dimensions of all facilities to be constructed, the facilities to be removed, and the proposed limits of clearing. The Department and ANR shall submit any comments on the construction plans to the Board within two weeks, and Co-Petitioners shall give due consideration to any comments from the Department and ANR. Co-Petitioners shall not commence site preparation or construction until final approval of the construction plans is issued by the Board.

d. In addition to removal of the GMP Substation and the VEC Substation as proposed in the evidence submitted in this proceeding, VEC shall remove the concrete

transformer slab at the VEC Substation, and GMP shall remove the concrete pads under the equipment at the GMP Substation.

e. Co-Petitioners shall retain one or more environmental consulting firms experienced in substation removal to prepare a reclamation report or reports advising the Co-Petitioners of the proper procedure for decommissioning the GMP Substation and the VEC Substation, including removal of the concrete equipment slabs at both locations. The reclamation report(s) shall include recommendations from the consultant(s) regarding for which toxic contaminants, if any (based upon historical site conditions), the soil should be tested. The reclamation report(s) shall be filed with the Board, and copied to the Department, ANR, and the Town of Richmond Planning Commission; those entities may then file comments on the report(s) within 30 days. Based upon the information contained in, and any comments on, the reclamation report(s) for the GMP Substation and the VEC Substation, the Board reserves the right to place further conditions on the removal of the GMP and/or VEC Substations. Except for the removal of the tops of poles within the VEC Substation to the extent that allows for the relocation of VEC's transmission and distribution lines, GMP and VEC shall not begin the removal process for their respective Richmond substations until the Board has given final approval for substation removal after reviewing the reclamation report(s) and any comments.

f. The removal of the GMP Substation shall be conducted such that the resulting sidewalk configuration does not present a danger to children and others using the sidewalk.

g. The Co-Petitioners must obtain, by purchase or easement, a real estate interest sufficient to guarantee that the existing mature vegetation will remain, or replacement of that vegetation can be located, to adequately screen from Route 2 and I-89: (1) the proposed Joint Substation, and (2) the proposed double-circuit transmission and distribution lines extending from the Joint Substation to the I-89 crossing at the location of the existing VEC Substation. Co-Petitioners shall be responsible for monitoring and maintaining the visual buffer of mature vegetation around the Joint Substation and related double-circuit transmission and distribution lines, including replacement plantings should

they be needed to replace existing vegetated buffers currently provided by adjoining properties.

h. The GMP Substation and the VEC Substation shall be fully removed no later than one year after the completion and proof of successful operation of the Joint Substation.

i. GMP and VEC shall obtain and comply with all conditions and requirements of all necessary permits and approvals; and shall not commence construction of the proposed project prior to obtaining approval of the Water Quality Division of ANR's Department of Environmental Conservation for a Conditional Use Determination with respect to a Class Two wetland located at the driveway entrance of the Project. Co-Petitioners shall promptly file copies of all outstanding certifications, permits and other approvals required for the Project.

j. This Certificate of Public Good shall not be transferred without prior approval of the Board.

Dated at Montpelier, Vermont, this 20th day of June, 2005.

<u>s/ James Volz</u>	)	
	)	
	)	PUBLIC SERVICE
<u>s/ David C. Coen</u>	)	
	)	BOARD
	)	
	)	OF VERMONT
<u>s/ John D. Burke</u>	)	

OFFICE OF THE CLERK

FILED: June 20, 2005

ATTEST: s/ Susan M. Hudson  
Clerk of the Board

*NOTICE TO READERS: This decision is subject to revision of technical errors. Readers are requested to notify the Clerk of the Board (by e-mail, telephone, or in writing) of any apparent errors, in order that any necessary corrections may be made. (E-mail address: Clerk@psb.state.vt.us)*

*Appeal of this decision to the Supreme Court of Vermont must be filed with the Clerk of the Board within thirty days. Appeal will not stay the effect of this Order, absent further Order by this Board or appropriate action by the Supreme Court of Vermont. Motions for reconsideration or stay, if any, must be filed with the Clerk of the Board within ten days of the date of this decision and order.*